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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/787,102	02/27/2004	Satoru Inami	00684.003599	5072

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EXAMINER	
WALSH, RYAN D	
ART UNIT	PAPER NUMBER
2852	

DATE MAILED: 09/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/787,102	INAMI ET AL.	
	Examiner	Art Unit	
	Ryan D. Walsh	2852	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 February 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *09 July 2004* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☒ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *7/9/2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Priority

Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Japan on February 28, 2003. It is noted, however, that applicant has not filed a certified copy of the present application as required by 35 U.S.C. 119(b).

Drawings

Figure 7 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

The disclosure is objected to because of the following informalities: Page 22, 1st Paragraph, should refer to figure 3, not figure 4. Page 22, Ln. 10, toner container "1" shows the wrong reference number.

Appropriate correction is required.

Claim Objections

Claim 22 is objected to because of the following informalities: The end of the claim is missing information. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 5, and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Shinohara et al. (US Pat. # 6,163,663).

Regarding claim 1, Shinohara et al. teach, "A developing apparatus comprising: a developer carrying member (10) for carrying a developer; a developer regulating member (9), contacted to said developer carrying member, for regulating a thickness of a layer of the developer on said developer carrying member; and a lubricant (Col. 5, Ln. 50-61) provided between said developer carrying member and said developer regulating member, wherein a charge polarity of said lubricant is opposite to a charge polarity of said developer, and a weight average particle size of said lubricant is not more than 1/3 of a weight average particle size of said developer (Col. 5, Ln. 65-67)."

Regarding claim 5, Shinohara et al. teach, "wherein the charge polarity of said developer is negative (Col. 5, Ln. 46), and said lubricant comprises melamine resin material particles (Col. 5, Ln. 63)."

Regarding claim 12, Shinohara et al. teach, "wherein said developing apparatus is provided in a cartridge detachably mountable to a main assembly of an image forming apparatus (Col. 45, Ln. 11-12)."

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 2-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shinohara et al. (US Pat. # 6,163,663) as applied to claim 1 above, in view of Japanese Laid-Open Patent Application (2002-278262).

Regarding claims 2 and 3, Shinohara et al. do not teach, "wherein said lubricant comprises spherical particles having an average circularity not less than 0.90, or wherein said lubricant comprises polymer particle. " However, having wherein said lubricant comprises spherical particles having an average circularity not less than 0.90 and is a polymer particle is routine in the art as shown by Japanese Laid-Open Patent Application (2002-278262), as described in the present application (Spec. Page 4, Ln. 18-22). It would have been obvious to one skilled in the art at the time the invention was made to modify Shinohara et al. to include a lubricant that comprises spherical particles having an average circularity not less than 0.90 and is a polymer particle.

The ordinary artisan would have been motivated to modify Shinohara et al. in a manner described above for at least the purpose of promoting uniform development throughout the entire surface of the developing roller.

Claims 4, 7-8, 13, 16, 18-19, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shinohara et al. (US Pat. # 6,163,663) in view of Mizoe et al. (US Pub. 2003/0152856).

Regarding claims 4 and 13, Shinohara et al. do not teach, "wherein a weight average particle size (μm) of said lubricant is smaller than an arithmetic average roughness (Ra) value (μm) of a surface of said developer carrying member." However, wherein a weight average particle size (μm) of said lubricant is smaller than an arithmetic average roughness (Ra) value (μm) of a surface of said developer carrying member is routine in the art as shown by Mizoe et al. ([0296], Ln. 8-13). It would have been obvious to one skilled in the art at the time the invention was made to modify Shinohara et al. to include wherein a weight average particle size (μm) of said lubricant is smaller than an arithmetic average roughness (Ra) value (μm) of a surface of said developer carrying member.

The ordinary artisan would have been motivated to modify Shinohara et al. in a manner described above for at least the purpose of avoiding scattering incident light by the dispersed particles on a photoconductive roller or to obtain the desired resistivity on the developing roller.

Regarding claims 7, 8, 18, and 19, Shinohara et al. do not teach, "wherein said lubricant has a weight average particle size of 0.01 μm-1.5 μm or a weight average particle size of 0.01 μm - 3 μm." However, having a weight average particle size of 0.01 μm-1.5 μm or a weight average particle size of 0.01 μm - 3 μm is routine in the art as shown by Mizoe et al. ([0296], Ln. 8). It would have been obvious to one skilled in the art at the time the invention was made to modify Shinohara et al. to include a lubricant that has a weight average particle size of 0.01 μm-1.5 μm or a weight average particle size of 0.01 μm - 3 μm.

The ordinary artisan would have been motivate to modify Shinohara et al. in a manner described above for at least the purpose of avoiding scattering incident light by the dispersed particles on a photoconductive roller or to obtain the desired resistivity on the developing roller.

Regarding claim 16, Shinohara et al. teach, "wherein the charge polarity of said developer is negative (Col. 5, Ln. 46), and said lubricant comprises melamine resin material particles (Col. 5, Ln. 63)."

Regarding claim 23, Shinohara et al. teach, "wherein said developing apparatus is provided in a cartridge detachably mountable to a main assembly of an image forming apparatus (Col. 45, Ln. 11-12)."

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shinohara et al. (US Pat. # 6,163,663) as applied to claim 1 above, in view of Okamoto et al. (US Pat. # 6,391,511).

Regarding claim 6, Shinohara et al. do not teach, "wherein the charge polarity of said developer is positive, and said lubricant comprises fluorine resin material particles." However, the charge polarity of said developer is positive, and said lubricant comprises fluorine resin material particles is routine in the art as shown by Okamoto et al. (Col. 8 Ln. 45-47 and Col. 9, Ln. 8-23). It would have been obvious to one skilled in the art at the time the invention was made to modify Shinohara et al. to include wherein the charge polarity of said developer is positive, and said lubricant comprises fluorine resin material particles.

The ordinary artisan would have been motivated to modify Shinohara et al. in a manner described above for at least the purpose of promoting thermal and oxidation stability within the developing unit.

Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Shinohara et al. (US Pat. # 6,163,663) and Mizoe et al. (US Pub. 2003/0152856) as applied to claim 13 above, and in further view of Okamoto et al. (US Pat. # 6,391,511).

Regarding claim 17, the combination of Shinohara et al. and Mizoe et al. do not teach, "wherein the charge polarity of said developer is positive, and said lubricant comprises fluorine resin material particles." However, the charge polarity of said developer is positive, and said lubricant comprises fluorine resin material particles is routine in the art as shown by Okamoto et al. (Col. 8 Ln. 45-47 and Col. 9, Ln. 8-23). It would have been obvious to one skilled in the art at the time the invention was made to modify the combination of Shinohara et al. and Mizoe et al. to include wherein the charge polarity of said developer is positive, and said lubricant comprises fluorine resin material particles.

The ordinary artisan would have been motivated to modify the combination of Shinohara et al. and Mizoe et al. in a manner described above for at least the purpose of promoting thermal and oxidation stability within the developing unit.

Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shinohara et al. (US Pat. # 6,163,663) as applied to claim 1 above, in view of Hare (US Pub. 2004/0157735).

Regarding claims 9 and 10, Shinohara et al. do not teach, "a coating amount of said lubricant on said developer regulating member is 1.5 g/m²-15 g/m² or a coating amount is 0.18 g/m²-1.9 g/m²." However, having a coating amount of said lubricant on said developer regulating member is 1.5 g/m²-15 g/m² or a coating amount is 0.18 g/m²-1.9 g/m² is routine in the art as shown by Hare ([0084]-[0085]). It would have been obvious to one skilled in the art at the time the invention was made to modify Shinohara et al. to include a coating amount of said lubricant on said developer regulating member is 1.5 g/m²-15 g/m² or a coating amount is 0.18 g/m²-1.9 g/m².

The ordinary artisan would have been motivated to modify Shinohara et al. in a manner described above for at least the purpose of promoting a more effective transfer of toner over the entire surface of a developing device.

Claims 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Shinohara et al. (US Pat. # 6,163,663) and Mizoe et al. (US Pub. 2003/0152856) as applied to claim 13 above, and in further view of Hare (US Pub. 2004/0157735).

Regarding claims 20 and 21, the combination of Shinohara et al. and Mizoe et al. do not teach, "wherein a coating amount of said lubricant on said developer regulating member is 1.5 g/m²-15 g/m² or a coating amount is 0.18 g/m²-1.9 g/m²." However, having a coating amount of said lubricant on said developer regulating member is 1.5 g/m²-15 g/m² or a coating amount is 0.18 g/m²-1.9 g/m² is routine in the art as shown by Hare ([0084]-[0085]). It would have been obvious to one skilled in the art at the time the invention was made to modify the combination of Shinohara et al. and Mizoe et al. to

include a coating amount of said lubricant on said developer regulating member is 1.5 g/m²-15 g/m² or a coating amount is 0.18 g/m²-1.9 g/m².

The ordinary artisan would have been motivated to modify the combination of Shinohara et al. and Mizoe et al. in a manner described above for at least the purpose of promoting a more effective transfer of toner over the entire surface of a developing device.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shinohara et al. (US Pat. # 6,163,663) as applied to claim 1 above, in view of Naka et al. (US Pat. # 6,586,151).

Regarding claim 11, Shinohara et al. do not teach, "wherein said developer contains not less than 90%, by number base cumulative value, of particles having not less than 3 μm corresponding diameters and having not less than 0.900 circularities, and wherein a weight average particle size X of said developer, and a number base cumulative value Y (%) of the particles having not less than

$$Y \geq \exp 5.51 \times X^{-0.645}$$

0.950 circularities satisfy: $(5.0 < X \leq 12.0)$. " However, having wherein said developer contains not less than 90%, by number base cumulative value, of particles having not less than 3 μm corresponding diameters and having not less than 0.900 circularities, and wherein a weight average particle size X of said developer, and a number base cumulative value Y (%) of the particles having not less than

$$Y \geq \exp 6.51 \times X^{-0.645}$$

0.950 circularities satisfy: $(5.0 < X \leq 12.0)$. is routine in the art as shown by Naka et al. (Col. 6, Ln. 30-67). It would have been obvious to one skilled in the art at the time the invention was made to modify Shinohara et al. to include wherein said developer contains not less than 90%, by number base cumulative value, of particles having not less than 3 μm corresponding diameters and having not less than 0.900 circularities, and wherein a weight average particle size X of said developer, and a number base cumulative value Y (%) of the particles having not less than

$$Y \geq \exp 6.51 \times X^{-0.645}$$

0.950 circularities satisfy: $(5.0 < X \leq 12.0)$.

The ordinary artisan would have been motivated to modify Shinohara et al. in a manner described above for at least the purpose of reducing the amount of waste toner with high transferring efficiency between the developing roller and a photoconductive drum.

Claims 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Shinohara et al. (US Pat. # 6,163,663) and Mizoe et al. (US Pub. 2003/0152856) as applied to claim 13 above, and in further view of Japanese Laid-Open Patent Application (2002-278262).

Regarding claims 14 and 15, Shinohara et al. and Mizoe et al. do not teach, "wherein said lubricant comprises spherical particles having an average circularity not less than 0.90, or wherein said lubricant comprises polymer particle. " However, having wherein said lubricant comprises spherical particles having an average circularity not

less than 0.90 and is a polymer particle is routine in the art as shown by Japanese Laid-Open Patent Application (2002-278262), as described in the present application (Spec. Page 4, Ln. 18-22). It would have been obvious to one skilled in the art at the time the invention was made to modify the combination of Shinohara et al. and Mizoe et al. to include a lubricant that comprises spherical particles having an average circularity not less than 0.90 and is a polymer particle.

The ordinary artisan would have been motivated to modify the combination of Shinohara et al. and Mizoe et al. in a manner described above for at least the purpose of promoting uniform development throughout the entire surface of the developing roller.

Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Shinohara et al. (US Pat. # 6,163,663) and Mizoe et al. (US Pub. 2003/0152856) as applied to claim 13 above, and in further view of Naka et al. (US Pat. # 6,586,151).

Regarding claim 22, the combination of Shinohara et al. and Mizoe et al. do not teach, "wherein said developer contains not less than 90%, by number base cumulative value, of particles having not less than 3 μm corresponding diameters and having not less than 0.900 circularities, and wherein a weight average particle size X of said developer, and a number base cumulative value Y (%) of the particles having not less than

$$Y \geq \exp 6.51 \times X^{-0.645}$$

0.950 circularities, satisfy: $(5.0 < X \leq 12.0)$. " However, having wherein said developer contains not less than 90%, by number base cumulative value, of particles

having not less than 3 μm corresponding diameters and having not less than 0.900 circularities, and wherein a weight average particle size X of said developer, and a number base cumulative value Y (%) of the particles having not less than

$$Y \geq \exp 5.51 \times X^{-0.645}$$

0.950 circularities satisfy: $(5.0 < X \leq 12.0)$. is routine in the art as shown by Naka et al. (Col. 6, Ln. 30-67). It would have been obvious to one skilled in the art at the time the invention was made to modify the combination of Shinohara et al. and Mizoe et al. to include wherein said developer contains not less than 90%, by number base cumulative value, of particles having not less than 3 μm corresponding diameters and having not less than 0.900 circularities, and wherein a weight average particle size X of said developer, and a number base cumulative value Y (%) of the particles having not less than

$$Y \geq \exp 5.51 \times X^{-0.645}$$

0.950 circularities satisfy: $(5.0 < X \leq 12.0)$.

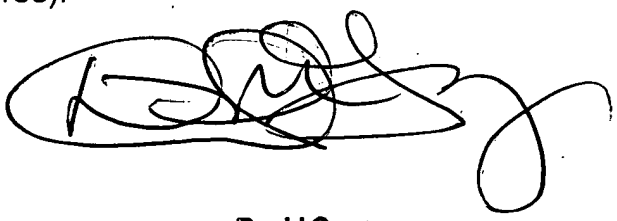
The ordinary artisan would have been motivated to modify the combination of Shinohara et al. and Mizoe et al. in a manner described above for at least the purpose of reducing the amount of waste toner with high transferring efficiency between the developing roller and a photoconductive drum.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ryan D. Walsh whose telephone number is 571-272-2726. The examiner can normally be reached on M-F 7:00am-3:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Gray can be reached on 571-272-2119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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